

## Claims

1. A bone screw having a longitudinal axis comprising:  
a threaded shaft which includes a threaded section with an external diameter  $D_A$ , a frontal thread end of the threaded section, and a thread profiler,  
wherein the thread profile has a front threaded flank directed towards the frontal thread end of the threaded section, a rear threaded flank and a flank angle  $\beta$ ,  
wherein the threaded section has a multiple thread, and each thread of the threaded section at the frontal thread end of the threaded section has a knife-like element with a cutting edge.
2. A bone screw according to claim 1, wherein the threaded section has a double thread.
3. A bone screw according to claim 1, wherein the cutting edge encloses a sector angle  $\alpha$  between  $45^\circ$  and  $200^\circ$  of a thread.
4. A bone screw according to claim 1, wherein the cutting edge is curved convexly.
5. A bone screw according to claim 3, wherein the sector angle  $\alpha$  is at least  $45^\circ$  and preferably of at least  $55^\circ$  of a thread.
6. A bone screw according to claim 3, wherein the sector angle  $\alpha$  is between  $55^\circ$  and  $200^\circ$  of a thread.
7. A bone screw according to claim 1, wherein the knife-like element encloses an angle  $\beta$  of between  $10^\circ$  and  $60^\circ$  with the rear threaded flank.
8. A bone screw according to claim 1, wherein the knife-like element encloses an angle  $\beta$  of between  $15^\circ$  and  $35^\circ$  with the rear threaded flank.
9. A bone screw according to claim 1, wherein the cutting edge, between a core and a tip of the thread is constructed helically.

10. A bone screw according to claim 1, wherein the knife-like element has a cutting angle  $\gamma'$  of between  $20^\circ$  and  $60^\circ$  least at a tip of the threaded section.

11. A bone screw according to claim 10, wherein the cutting angle  $\gamma'$  is between  $35^\circ$  and  $50^\circ$  at least at the tip of the threaded section.

12. A bone screw according to claim 1, wherein the knife-like element has a constant cutting angle  $\gamma'$ .

13. A bone screw according to claim 1, wherein the frontal thread end of the threaded section coincides with the front end of the bone screw.

14. A bone screw according to claim 1, wherein the front end is convex.

15. A bone screw according to claim 1, wherein the front end of the bone screw comprises a conical face which encloses an angle  $\phi$  with the longitudinal axis.

16. A bone screw according to claim 1, wherein the knife-like element is sickle-shaped with the cutting edge disposed on the outer edge.

17. A bone screw according to claim 1, wherein the threaded section comprises at least two thread ridges (25), which have a flank angle  $\delta$  at the core of the threaded section and a flank angle  $\delta'$  at the periphery of the thread.

18. A bone screw according to claim 17, wherein the flank angle  $\delta$  at the core of the threaded section is larger than the flank angle  $\delta'$  at the periphery of the thread.